

## WHAT IS CLAIMED IS:

1. A method of loading a system image onto an optical node capable of routing wireless communications data, the method comprising:
  - retrieving system configuration parameters and boot parameters;
  - loading the system image;
  - loading an alternate system image upon detecting any failures during loading the system image; and
  - storing a boot string such that the system image can learn how it was loaded.
2. A method as defined in Claim 1, further comprising performing a self-test and an initialization of a controller located in a node base the optical node.
3. A method as defined in Claim 1, wherein the system image is retrieved over a network connection.
4. A method as defined in Claim 1, wherein the system image is retrieved over an auxiliary channel connection.
5. A method as defined in Claim 1, wherein the system image is retrieved from a local memory block.
6. A method as defined in Claim 1, further comprising storing and retrieving the system configuration parameters and the boot parameters from a system configuration memory block in the node base.
7. A method as defined in Claim 1, further comprising retrieving and verifying the system configuration parameters and the boot parameters via a DHCP request over a network connection.
8. A method as defined in Claim 1, further comprising detecting failures when a predetermined time interval and a predetermined number of load attempt are exceeded.
9. A method of loading a system image onto a wireless node in a network comprising various facilities, a plurality of nodes, a backbone network, and one or more network servers storing a system image, said node capable of routing wireless communications data and interconnected by communication links with the plurality of nodes in the network, the method comprising:

(a) loading a network image from the network server onto a system memory block as the system image for execution by a processor;

(b) loading a main image from a local memory block onto the system memory block as the system image for execution by the processor if loading the network image from the network server is unsuccessful; and

(c) loading a safety image from the local memory block onto the system memory block as the system image for execution by the processor if loading the main image is unsuccessful.

10. A method as defined in Claim 9, further comprising repeating steps (a) through (c) if the loading of the safety image is unsuccessful.

11. A method as defined in Claim 9, further comprising repeating steps (a) through (c) in any order.

12. A method of loading a system image onto an optical node capable of routing wireless communication data and comprising a plurality of node heads and a node base, said node base further comprising a processor, a boot memory block, a local memory block, a system configuration memory block, and a system memory block, the method comprising:

retrieving system configuration parameters and boot parameters from the system configuration memory block;

loading the system image onto the system memory block;

detecting failures during loading of the system image;

loading an alternate system image onto the system memory block upon failure of the system image load; and

storing a boot string onto the system memory block such that the system image can learn how it was loaded.

13. A method as defined in Claim 12, further comprising detecting failures using a predetermined time interval factor.

14. A method as defined in Claim 12, further comprising detecting failures using a predetermined number of load attempts factor.

15. A method as defined in Claim 12, further comprising retrieving the system image from the network server over a communication link.

16. A method as defined in Claim 12, further comprising retrieving the system image from the network server over an auxiliary channel.

17. A method as defined in Claim 12, further comprising retrieving the system image from the local memory block.

18. A system for loading a system image onto a communication node capable of routing wireless communication data, the system comprising:

- a plurality of node heads within the communication node wherein the node heads comprises a plurality of transceivers;

- a node base coupled to said plurality of node heads and comprising a processor coupled to a boot memory block, a local memory block, a system configuration memory block, and a system memory block;

- a plurality of communication links connecting the communication node to a communication mesh network comprising a plurality of communication nodes;

- one or more network servers; and

- an auxiliary channel coupled to the processor to provide an auxiliary communication channel

wherein the processor is configured to retrieve the system image from a plurality of locations including the local memory block and the network server and to load the system image onto the system memory block.

19. A boot load loop module for loading a system image onto a system memory block of an optical node in a communication network, the boot load loop module configured to control a processor to:

- retrieve system configuration parameters and boot parameters from a system configuration memory block;

- load the system image onto the system memory block;

- detect failures during the system image load;

- load an alternate system image onto the system memory block upon detecting failures during the system image load;

- storing a boot string onto the system memory block such that the system image can learn how it was loaded.

20. A method of detecting system image load attempt failure, the method comprising:

tracking elapsed time between load attempts;

tracking total number of load attempts; and

flagging the system image as bad image if the system image fails to load within a predetermined elapsed time between load attempts and within a predetermined total number of load attempts.

21. The method as defined in Claim 20, further comprising retrieving a new image to load as the system image when the system image previously attempted to load is flagged as bad image.